

## WHAT IS CLAIMED IS:

1. An isolated antisense molecule comprising a nucleotide sequence targeted to the sequence set forth in SEQ ID NO:1.
2. An isolated antisense molecule comprising a nucleotide sequence targeted to the sequence set forth in SEQ ID NO:2.
3. An isolated antisense molecule comprising the nucleotide sequence set forth in SEQ ID NO:3, said sequence complementary to nucleotides 156-185 of BC200 RNA.
4. An isolated antisense molecule comprising the nucleotide sequence set forth in SEQ ID NO:4, said sequence complementary to nucleotides 158-178 of BC200 RNA.
5. An isolated antisense molecule comprising the nucleotide sequence set forth in SEQ ID NO:5.
6. An isolated nucleic acid molecule comprising the nucleotide sequence set forth in SEQ ID NO:6, complementary to DNA encoding BC200 RNA.
7. The isolated nucleic acid molecule of any one of claims 1-6 admixed with a pharmaceutically acceptable carrier.
8. A method for treating a neurological disorder or cancer in a subject, said method comprising down-regulating BC200 RNA in the subject.

9. The method of claim 8 wherein the down-regulating of BC200 RNA in a subject comprises administering a therapeutically effective amount of a dominant negative mutant of BC200 RNA or a small interfering RNA.

10. The method of claim 8 wherein the down-regulating of BC200 comprises administering a therapeutically effective amount of an antisense molecule targeted to the nucleotide sequence set forth in SEQ ID NO:1 or SEQ ID NO:2.

11. The method of claim 8 wherein the down-regulating of BC200 comprises administering a therapeutically effective amount of at least one of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, or SEQ ID NO:6.

12. The method of any one claims 8-11 wherein the neurological disorder is at least one of Alzheimer's disease, Fragile X mental retardation syndrome, Down's syndrome and Parkinson's disease.

13. The method of any one of claims 8-11 wherein the cancer is at least one of squamous cell carcinoma of the tongue and lung, epithelial carcinoma of the esophagus, tubular adenocarcinoma of the stomach, breast adenocarcinoma, adenocarcinoma of the lung, mucoepidermoid of the parotid gland, melanoma of the skin, papillary carcinoma of the ovaries, or endothelial adenocarcinoma of the cervix.

14. A method for treating epilepsy in a subject, the method comprising up-regulating BC200 RNA in a patient.

15. The method of claim 14 wherein the up-regulating comprises administering to the patient a therapeutically effective amount of BC200 RNA.

16. The method of claim 14 wherein the up-regulating comprises administering to the patient a gene therapy construct having a DNA or RNA corresponding to BC200 operably linked to a promoter which functions in the cells of the subject.

17. A kit comprising an antisense molecule of any one of claims 1-6 and a pharmaceutically acceptable carrier.

18. The kit of claim 17 wherein the antisense molecule is packaged separately from the pharmaceutically acceptable carrier.

19. The kit of claim 17 wherein the antisense molecule is admixed with the pharmaceutically acceptable carrier.